

Material Safety Data Sheet

Hydrochloric Acid

This information applies to concentrated hydrochloric acid (33-40%). The risks associated with handling the 1:1 dilution of HCl and water which is added to samples, although undetermined, are expected to be less severe.

I. Product Identification/Sender Information

Product Name:	Hydrochloric acid
Formula:	HCl
Formula Wt:	36.46
CAS No.:	7647-01-0
NIOSH/RTECS No:	MW4025000
(Registry of Toxic Effects of Chemical Substances)	
Common Synonyms:	Muriatic acid, chlorohydric acid, hydrogen chloride-aqueous
Sender's Name:	Wisconsin State Laboratory of Hygiene
Sender's Address:	2601 Agriculture Drive P.O. Box 7996 Madison, WI 53707-7996
Sender's Telephone Number:	(608) 224-6269

II. Hazardous Ingredients/Identity Information

Hydrochloric Acid	CAS No.: 7647-01-0
Weight %:	33-40%
OSHA/PEL:	5 ppm
TLV:	5 ppm

III. Physical/Chemical Characteristics

Physical State:	Liquid
Boiling Point:	149°C (300°F)
Melting Point:	-25°C (-13°F)
Specific Gravity:	1.18 (H ₂ O = 1)
Vapor Pressure:	N/A
Vapor Density:	1.3 (Air = 1)
Evaporation Rate:	N/A
Solubility (H ₂ O):	100%
pH:	1.0 (0.1M solution)
Appearance and Odor:	Clear, colorless fuming liquid; pungent odor.

IV. Fire and Explosion Hazard

Flashpoint:	N/A NFPA 704M Rating: 3-0-0
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Fire Extinguishing Media:

Use extinguishing media appropriate for surrounding fire: Water spray, CO₂ or dry chemical.

Special Fire Fighting Procedures:

Fire fighters should wear proper protective equipment and self-contained breathing apparatus with full facepiece operated in positive pressure mode. Move containers from fire area if it can be done without risk. Use water to keep fire-exposed containers cool. Do not get water inside containers.

Unusual Fire and Explosion Hazards: May emit hydrogen gas on contact with metal.

Toxic Gases Produced: Hydrogen Chloride, Hydrogen.

V. Health Hazard Data

Threshold Limit Value (TLV/TWA):	7mg/m ³ (5 ppm)
Permissible Exposure Limit:	7mg/m ³ (5 ppm)
(TLV and PEL are for Hydrogen Chloride)	
Short Term Exposure Limit (STEL):	N/A
Inhalation 1 hour LC50 for HCl in Rat:	3124 ppm

Effects of Over Exposure:

Liquid may cause severe burns to skin and eyes. Inhalation of vapors can cause pulmonary edema, circulatory failure, respiratory system damage, coughing, difficulty breathing. Ingestion may be fatal; causes severe burns, nausea, vomiting.

Emergency and First Aid Procedures: Call a physician

Ingestion: Do not induce vomiting. If conscious, give water, milk or milk of magnesia.

Inhalation: Remove to fresh air. If not breathing give artificial respiration. If breathing is difficult, give oxygen.

Skin and Eyes: Immediately flush eyes and skin with plenty of water for at least 15 minutes while removing contaminated clothing and shoes.

VI. Reactivity Data

Stability:	Stable
Conditions to Avoid:	Heat, moisture
Decomposition Products:	Hydrogen chloride, hydrogen, chlorine
Hazardous Polymerization:	Will not occur
Incompatibilities:	Most common metals, water, acetic anhydride, propiolactone, vinyl acetate, formaldehyde, alkaline materials, carbonates, strong bases, sulfuric acid.

VII. Precautions for Safe Handling and Use**Steps to be taken in the event of a spill or discharge:**

Wear self-contained breathing apparatus and full protective clothing. Stop the leak if it can be done without risk. Ventilate area. Neutralize spill with soda ash or lime. With a clean shovel, carefully place materials into a clean, dry container and cover; remove from area. Flush the spill area with water.

Disposal Procedure:

Dispose in accordance with all applicable federal, state and local environmental regulations.

EPA Hazardous Waste Number:	D002 (Corrosive Waste)
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VIII. Control Measures

Ventilation: Use general or local exhaust ventilation to meet TLV requirements.

Respiratory Protection:

Respiratory protection required if airborne concentration exceeds TLV. At concentrations up to 100 ppm, a chemical cartridge respirator with acid cartridge is recommended. Above this level, a self-contained breathing apparatus is advised.

Eye/Skin Protection:

Safety goggles and face shield, uniform, protective suit, and acid resistant gloves are recommended.

IX. Reference

Material Safety Data Sheet for Hydrochloric Acid, J.T. Baker, Inc., H3880-04, 03/30/92.

